

CLAIMS

I claim:

1. A printed antenna assembly for the transmission of electromagnetic waves, the printed antenna comprising:

a substantially planar circuit board having a first planar surface and a second planar surface, the first and second planar surfaces being parallel and spaced by a material thickness, the circuit board including a mounting section and an antenna section integrally formed with each other;

an antenna driving circuit mounted to the first surface of the mounting section for generating electromagnetic waves to be transmitted by the printed antenna;

a pair of radiating strips formed on the antenna section of the circuit board and coupled to the antenna driving circuit for the transmission of electromagnetic waves; and

a pair of impedance matching strips formed on the antenna section of the circuit board and each coupled to one of the radiating strips, the impedance matching strips each having a length selected to substantially match the impedance of the antenna driving circuit.

2. The printed antenna assembly of claim 1 wherein the impedance matching strip and the radiation strip are formed on the same side of the printed circuit board.

3. The printed antenna assembly of claim 2 wherein the pair of radiation strips have a combined length less than one-half the wavelength of the transmitted electromagnetic waves.

4. The printed antenna assembly of claim 3 wherein each impedance matching strip includes at least a first leg formed on the antenna section and extending parallel to the radiation strip.

5. The printed antenna assembly of claim 4 wherein each impedance matching strip includes a second leg coupled to the first leg and extending parallel to the first leg.

6. The printed antenna assembly of claim 5 wherein the second leg is shorter than the first leg.

7. The printed antenna assembly of claim 4 wherein the impedance matching strip includes a plurality of legs each extending parallel to the radiating strip, wherein the plurality of legs are coupled to each other and spaced from each other to define a serpentine pattern.

8. The printed antenna assembly of claim 2 wherein the impedance matching strip and the radiating strip are integrally formed with each other and are formed from electrically conductive material applied to the second surface of the antenna section.

9. The printed antenna assembly of claim 7 wherein the impedance matching strip includes a tuning stub connected to the plurality of legs and extending parallel to the radiating strip, wherein the length of the tuning stub is adjustable to match the impedance of the antenna driving circuit.

10. The printed antenna assembly of claim 1 further comprising a ground plane formed on the second planar surface of the circuit board, wherein the ground plane is formed only along the mounting section of the circuit board.

11. The printed antenna assembly of claim 10 wherein the antenna driving circuit and the pair of radiating strips are both mounted to the first surface of the circuit board.

12. A printed antenna for the transmission of electromagnetic waves, the printed antenna comprising:

a substantially planar circuit board formed from a dielectric material and having a first planar surface and a second planar surface, the first and second planar surfaces being parallel and spaced by a material thickness;

a mounting section contained on the circuit board;

an antenna section contained on the circuit board and integrally formed with the mounting section; and

a pair of opposed radiating and impedance matching traces formed on the first planar surface of the antenna section of the circuit board, the radiating and impedance matching traces each including a radiating strip and an impedance matching strip coupled to the radiating strip, the impedance matching strip having at least a first leg positioned parallel to the radiating strip.

13. The printed antenna assembly of claim 12 wherein the impedance matching strip includes at least a second leg coupled to the first leg and extending parallel to the first leg.

14. The printed antenna assembly of claim 13 wherein the second leg is shorter than the first leg.

15. The printed antenna assembly of claim 12 wherein the impedance matching strip includes a plurality of legs each extending parallel to the radiating strip, wherein the plurality of legs are coupled to each other and spaced from each other to define a serpentine pattern.

16. The printed antenna assembly of claim 12 further comprising an antenna driving circuit mounted to the first surface of the mounting section for generating electromagnetic waves to be transmitted by the printed antenna.

17. The printed antenna assembly of claim 16 further comprising a ground plane formed on the second planar surface of the mounting section such that the antenna driving circuit is mounted above the ground plane.

18. The printed antenna assembly of claim 15 wherein the impedance matching strip includes a tuning stub coupled to the plurality of legs and extending parallel to the radiating strip, wherein the length of the tuning stub is adjustable to match the impedance of the driving circuit.

19. The printed antenna assembly of claim 12 wherein the pair of radiating strips have a combined length less than one-half the wavelength of the transmitted electromagnetic waves.